Preventing faecal incontinence through prevention and management of constipation in adults aged 40-65 years:
Developing and evaluating guidelines for health professionals and resources for their clients

Final Report to the Department of Health and Ageing
January 2004

Prepared by
Marianne Wallis
About the Author

Associate Professor Marianne Wallis PhD RN
Marianne has worked in the UK and Australia as a general medical/surgical nurse and as a cardiothoracic nurse. In January 2000 she was appointed to the inaugural Chair, Clinical Nursing Research at Griffith University and Gold Coast Health Services District. In this position she combines university postgraduate teaching with the management of a portfolio of clinical research projects. She is the Program Leader for Practice Development and Evidence-Based Practice in the Griffith University Research Centre for Clinical Practice Innovation.
# Table of Contents

EXECUTIVE SUMMARY 1

PROJECT TEAM MEMBERS 2

ACKNOWLEDGEMENTS 3

SECTION ONE: Overview of the Project 4

1.1 Introduction 4
1.2 Objectives of the Project 4
1.3 Background to the Project 4
1.4 The Systematic Review 5
1.5 Health Professional Survey 5
1.6 The Project Materials – Best Practice Guidelines and Client Educational Materials 6
1.7 Evaluation of the Best Practice Guidelines and Client Educational Materials 6
1.8 Overview of the Report

SECTION TWO: Systematic Review 7

2.1 Introduction 7
2.2 Systematic Review Process 7
2.3 Major Findings of Systematic Review 8

SECTION THREE: Health Professional Survey 10

3.1 Background 10
3.2 Methods 10
3.3 Results 10
3.4 Conclusion 11

SECTION FOUR: Development of Best Practice Guidelines and Client Educational Materials 12

4.1 Development 12
4.2 Client Poster 12
4.3 Client Brochure 12
4.4 Best Practice Guidelines and Algorithm 13

SECTION FIVE: Evaluation of Best Practice Guidelines and Client Educational Materials 14

5.1 Process 14
5.2 Results of Evaluation 14

SECTION SIX: Budget Expenditure Report 16

REFERENCES 17

APPENDICES 18
Executive Summary

Overview
This project incorporated four main components, a systematic review of the strategies employed in the prevention and management of constipation, a needs assessment of health professionals, the development of various clinical materials to help health professionals and sufferers manage chronic constipation more effectively and an evaluation of these materials.

A systematic review of research conducted into the effectiveness of interventions designed to prevent or manage constipation in adults aged 40-65 years was completed. The areas covered in the systematic review included diet, exercise, laxatives, biofeedback and surgery.

The project also involved a survey administered to a range of health professionals which ascertained that there was a need for evidenced-based resources to assist clinicians in their clinical decision-making for adult clients with or at risk of constipation. The results of the survey also indicated that clinicians preferred print based, clinical guidelines and educational materials for themselves and their clients.

Based on the systematic review and the findings of the clinician survey a client brochure, a client poster, a clinician’s decision-making algorithm and evidence-based clinical guidelines were produced. These materials went through an exhaustive four-stage process of refinement by clinicians and academic experts. Once produced the materials were distributed to over six hundred clinicians including general medical practitioners, nurses, physiotherapists and dietitians on the Gold Coast, Queensland. These clinicians rated the materials very highly and indicated that they would be useful in practice.

Objectives of the project
The objectives of this project were to:
• conduct a systematic review into the prevention or holistic management of constipation in adults aged 40-65 years;
• develop innovative best practice guidelines aimed at members of the multidisciplinary healthcare team who treat clients aged 40-65 years with or at risk of chronic constipation;
• develop educational material aimed at educating people aged 40-65 years about bowel function, avoidance of constipation and prevention of faecal incontinence; and
• evaluate the best practice guidelines and the educational material referred to above in terms of practitioner preference and accessibility of the resources.

Outcomes of the Project
The project objectives were fully achieved although its completion was delayed by seven months. The specific outputs produced for the Department of Health and Ageing as a result of this project are:
• A systematic review of research into the effectiveness of diet, exercise, laxatives, biofeedback and surgery in the prevention and management of chronic constipation in adults aged 40-65 years.
• A health professional survey report into knowledge of management of constipation and usefulness of clinical guidelines and educational materials.
• ‘Don’t battle constipation on your own’ client poster
• ‘The much shorter answer to constipation’ client brochure
• ‘Prevention and management of constipation in adults’ health professional algorithm
• ‘Help patients win the constipation battle’ best practice clinical guidelines for health professionals.
• A report on the project processes and outcomes which includes evaluation of the materials produced by the project team.
Project Team Members

Research Team

A/Prof Marianne Wallis RN, BSc(Hons), Cardio Thoracic Cert. PhD, FRCNA
Chair, Clinical Nursing Research
Griffith University Research Centre for Clinical Practice Innovation and Gold Coast Health Services District
Gold Coast Hospital
108 Nerang Street, Southport. QLD 4215.
Phone/Fax: (07) 5571 8728 / (07) 5571 8310
Email: m.wallis@griffith.edu.au

Dr Winsome St John RN, RM, MCHN, MNS, GradDipEd, BAppSc (Nursing), PhD, FRCNA
Senior Lecturer, Faculty of Nursing and Health
Griffith University
School of Nursing, Griffith University, PMB 50 Gold Coast Mail Centre. QLD 9826
Email: w.stjohn@griffith.edu.au

A/Prof Elizabeth Gass DipPhty, BAppSc, MAappSc, PhD
School of Physiotherapy
Griffith University
School of Physiotherapy, Griffith University, PMB 50 Gold Coast Mail Centre. QLD 9826
Email: e.gass@griffith.edu.au

Mr Roger Hughes BSc, Grad Dip Nut & Diet, PGDip Health Prom, MPH
Director, Nutrition Unit
Senior Lecturer in Nutrition and Dietetics, School of Health Science
Griffith University
Department of Nutrition, Griffith University, PMB 50 Gold Coast Mail Centre. QLD 9826
Email: r.hughes@griffith.edu.au

Clinical Team

Ms Shona McKenzie RN, BSc, AssDipHealthEd, PGCert Geront Nurs
Continence Nurse Specialist,
Royal Brisbane Hospital
Herston QLD 4006

Ms Sheridan Guyatt BPhysio
Physiotherapist
West Moreton Health District

Ms Jennifer Rayner RN, BN CertContNurse
Continence Nurse Specialist
Clinical Nurse Consultant, Stomal Therapist
Gold Coast Hospital
Southport QLD 4215.

Research Assistant

Ms Susan Griffiths BA
School of Nursing, Griffith University, PMB 50 Gold Coast Mail Centre.
QLD 9826
Acknowledgements

This project was funded by the Australian Government, under the National Continence Management Strategy – Faecal Continence Grants Program, administered by Department of Health and Ageing. This funding has enabled development of quality products that will help clinicians manage middle-aged clients with or at risk of chronic constipation. In addition, this management will be based on the best available evidence that incorporates research findings, clinical expertise and client preference.

The project team wish to acknowledge the assistance of a range of clinical staff from the Gold Coast Health Service District including the staff of the Gastrointestinal Surgical Department, the Pharmacy Department, the Physiotherapy Department and the Division of Nursing. The success of the project would not have been possible without their spirit of collaboration and good will.

We would like to thank Redsuit for their designs for the brochure, poster, algorithm and best practice guidelines. They were instrumental in providing a professional, clean and striking image and promoting a positive aspect to bowel management and the prevention of constipation.
SECTION ONE

Overview of the Project

1.1 Introduction
This project was funded under the National Continence Management Strategy – Faecal Incontinence Grants program. The purpose of this project was to develop evidence-based best practice guidelines for clinicians related to the prevention and management of constipation in adults aged 40 to 65 years. In addition, educational materials for adults in the relevant age range were to be developed.

The materials produced during this project include a systematic review of the literature, a client education poster, a client education brochure, a decision-making algorithm for health professionals and Best Practice Guidelines for health professionals. These materials provide evidence-based information related to interventions that may be utilised by a range of health professionals for the prevention or management of constipation in otherwise healthy middle aged adults. This report describes the processes undertaken to complete the systematic review, to develop and to evaluate the client educational materials and the professional Best Practice Guidelines.

1.2 Objectives of the Project
The objectives of this project were to:
- conduct a systematic review into the prevention or holistic management of constipation in adults aged 40-65 years;
- develop innovative best practice guidelines aimed at members of the multidisciplinary healthcare team, who treat clients aged 40-65 years with or at risk of chronic constipation;
- develop educational material aimed at educating people aged 40-65 years about bowel function, avoidance of constipation and prevention of faecal incontinence;
- evaluate the best practice guidelines and the educational material referred to above, in terms of practitioner preference and accessibility of the resources.

1.3 Background to the Project
Chronic constipation is associated with both faecal (Norton, 1996; Snooks et al., 1998) and urinary incontinence (Chiarelli et al., 1999). Constipation leads to defaecation straining which in turn damages the nerves that innervate both the puborectalis and external anal sphincter. Neuropathic changes, as a result of straining, lead to incontinence and stretch injury to the pudendal nerve, in particular, has been implicated (Engel & Kamm, 1994). In western countries 10 - 25% of the population strain at stool on more than 25% of occasions (Snooks et al., 1998) and up to 17% of the population have significant constipation at some time in their lives (Bartolo, et al., 1994). In the USA chronic constipation is the number one gastrointestinal complaint accounting for 2.5 million physician visits per year (Harris, 1998; Sweeney, 1997).

Early treatment of constipation and the avoidance of chronicity need to be addressed to decrease incontinence in later life.

Constipation and faecal incontinence both increase with age. Men and women in middle age are a good group to target for the prevention and the management of more minor symptoms before the subsequent onset of faecal incontinence (Chiarelli et al., 2000). One Australian study of women found that constipation prevalence was 14% in younger women, 26.6% in middle aged women and 27% in older women and that this was also significantly associated with the prevalence of urinary incontinence (Chiarelli, et al., 2000). This study found that approximately half of the women in the middle age to older age group sought help for their constipation but only a third of younger women sought help (Chiarelli et al., 2000). This indicates that problems with constipation often compound in the middle years and preventative
measures in the early course of the problem will be the most effective means of preventing long term sequelae, such as faecal and urinary incontinence. In addition, women with pelvic organ prolapse, which often occurs around menopause, have a high prevalence of altered bowel function and straining at stool (Spence-Jones et al., 1994).

Many approaches to the management of constipation are inappropriate, and client knowledge may be poor, for example, many individuals resort to the long-term use of laxatives to self-manage constipation (Sweeney 1997). In addition, the focus of many health professionals has been found to be laxative administration as a solution to constipation. Most systematic reviews have focused on laxative and/or fibre prescription (e.g. Tramonte et al., 1997). Research and clinical practice suggest that a holistic approach designed to manage constipation in the long-term with increased exercise, increased dietary fibre and fluids and bowel retraining is required (Burkitt, 1974; Sheehy & Richards Hall, 1998; Tramonte et al., 1997). It has also been suggested that management should be individualised and dependent on the cause and nature of the complaint. Recent studies have suggested that biofeedback techniques may also be useful (Chiotakakou-Faliakou et al., 1998). The variety of causative factors also suggests the need for consultation and input from multiple disciplines including doctors, nurses, dietitians, pharmacists and physical therapists (Sheehy & Richards Hall, 1998).

While there is a lot of information available it is located in the literature of different disciplines and therefore, difficult to access by busy clinicians. There is a need to draw the evidence for practice together to provide accessible information. In addition, the project team was uncertain as to the level of knowledge of clinicians and their preferences for clinical guidelines and educational material presentation. This project developed evidence-based practice guidelines for use by health professionals related to constipation treatment/management in middle-aged men and women. It also developed innovative educational material aimed at health professionals and their clients.

1.4 The Systematic Review

An international consultant was commissioned to assess the feasibility of the project and to design a strategy to guide the conduction of the systematic review.

1.5 Health Professional Survey

A survey of clinicians, conducted at the beginning of the project, identified that clinicians had a knowledge-deficit regarding clinical decision-making regarding the prevention and management of constipation in this population. The results of the survey also indicated that print-based materials would be the most acceptable to this group of health professionals.

1.6 The Project Materials – Best Practice Guidelines and Client Educational Materials

The academic project team analysed the results of the health professional survey and determined that a decision-making algorithm, best practice guidelines and client educational materials should be produced. Based on the systematic review the expert panel of clinical experts developed a first draft of the best practice guidelines and client brochure. Other clinicians and the academic project team then reviewed this draft and revisions were made to the documents. At this point Redsuit, a graphic design and advertising company, was engaged to ensure that the final products were visually appealing and would have an impact for both health professionals and their clients.

Three rounds of change, re-drafting and revision took place with major re-writing of the materials being undertaken each time. This process ensured that not only was the material provided accurate and reflective of the evidence derived from the systematic review but also that it would be useful and appealing to both health professionals and their clients.
1.7 Evaluation of the Best Practice Guidelines and Client Educational Materials

The materials developed for this project were sent to over six hundred health professionals in the Gold Coast region, Queensland. Specifically, the materials were sent to general medical practitioners, nurses, physiotherapists and dietitians. Included with the materials was a quick evaluation survey asking the clinicians to rate the appropriateness and useability of the materials. The results of this evaluation were highly positive.

1.8 Overview of the Report

This section of the report has provided an overview of the project. Section Two presents information related to the systematic review. Section Three presents the results of the health professional survey. Section Four presents information on the health professional and client materials produced as part of the project while Section Five presents the results of the evaluation survey sent to health professionals with the best practice guidelines and client education materials. The final section presents a detailed outline of budget expenditure. This will be supplemented by an official report on expenditure from the Griffith University Office of Research.
SECTION TWO

Systematic Review

2.1 Introduction

Prior to commencing the systematic review an international consultant in systematic reviewing in multidisciplinary areas was commissioned to determine the feasibility of the project and the search strategy that should be used by the project team. The report of the NuDeA consultancy is included as Appendix 1. Following receipt of this document the team analysed the report and agreed to follow the recommendations and to adopt the search strategy as outlined except that clinical guidelines would not be included in the review unless they were research based.

2.2 Systematic Review Process

Following both a preliminary literature review and the NuDeA report it was decided that the main intervention areas that would be covered in the review were:

- Diet and fluids
- Exercise
- Laxatives
- Biofeedback
- Surgical procedures

Each of the academic members of the team then undertook to oversee the following reviews:

- Diet and fluids – Mr Roger Hughes who delegated the review process to Mr Ben Desbrow
- Exercise – A/Prof. Elizabeth Gass
- Laxatives – A/ Prof. Marianne Wallis
- Biofeedback – Dr Winsome St John
- Surgical procedures – A/Prof. Marianne Wallis

Classifying and assessing studies

The purpose of this review was to produce a narrative analysis of the research based evidence for the different interventions available to prevent or manage constipation rather than a meta-analysis of one intervention. Thus five different interventions are examined and a variety of studies employing different research designs are included in the systematic review.

This systematic review classified the studies into the following groups: systematic reviews, experimental studies and non-experimental studies. Systematic reviews were only included if clearly defined selection criteria and assessment of the quality of the studies were reported. Experimental studies were those in which an experiment was designed to test an intervention, this may or may not have included randomisation or controls. Non-experimental studies included those quantitative studies that did not incorporate an experiment but might have been descriptive, correlational or case studies.
Two independent assessors using criteria based on the Joanna Briggs Institute criteria assessed the level of evidence represented by the articles. These levels are:

**Level I**
Evidence obtained from a systematic review or meta-analysis of all relevant randomised controlled trials.

**Level II**
Evidence obtained from at least one properly designed randomised controlled trial.

**Level III**
- 1 Evidence obtained from well designed controlled trials without randomisation
- 2 Evidence obtained from well designed cohort or case control, analytic studies preferably from more than one centre or research group
- 3 Evidence obtained from multiple time series, with or without the intervention. Dramatic results in uncontrolled experiments.

**Level IV**
Opinion of respected authorities based on clinical experience, descriptive studies, or reports of expert committees.

**Analysis**

The search strategy yielded 980 references. Only articles published in English were included. When the references were checked and duplicates or completely unsuitable articles were excluded 620 references were accessed. Three members of the project group conducted the first appraisal of these 620 references. The next criteria used to assess suitability of the articles were that they were focused on interventions designed to prevent or treat constipation and that they used predetermined outcome measures. From the 620 references 528 studies were eliminated because they 1) did not specifically address constipation (many studied constipating irritable bowel syndrome); 2) were not based on empirical research; 3) did not use relevant outcome measures; 4) were already included in systematic reviews accessed for this review.

Finally, a pool of 87 articles was selected for inclusion in the review. These studies were then abstracted by two independent assessors and included in this systematic review. Where there was a difference in assessment of the article the reviewers discussed the article and consensus was reached.

**2.3 Major Findings of Systematic Review**

The systematic review is presented in Appendix 2. From this systematic review the following recommendations can be made for the prevention and/or management of constipation in adults aged 40-65 years.

**Recommendations for dietary fibre and fluid intake**
- Daily dietary fibre intake of 25-35 grams/day – **Level II evidence**.
- This should be a combination of soluble and insoluble fibre - **Level III evidence**.
- It is important that the client finds a way of taking the fibre that is convenient. The introduction of dietary fibre to prevent constipation is a long-term commitment and any strategy needs to be sustainable – **Level III evidence**.
- Daily fluid intake of 1.5-2 litres (six to eight glasses of water) per day is recommended to prevent constipation – **Level III evidence**.
Recommendations for exercise and positioning
- The ‘National Physical Activity Guidelines for Australians’ recommendation is 30 minutes of moderate intensity activity (such as walking) most days of the week – **Level III evidence for effectiveness in preventing constipation**.
- A physiotherapist with a strong background in exercise can make individualised exercise prescriptions that will achieve specific desired goals for any one person. Referral to a physiotherapist may be beneficial for people who find it difficult to implement a change in exercise patterns – **Level IV evidence**.
- The most effective time to empty the bowel is when the urge to defecate is first experienced. First thing in the morning or following a meal are common times to get this urge – **Level IV evidence**.
- Do not strain to empty the bowel. This will stretch down on the muscles supporting the pelvic area and not empty the bowel effectively – **Level IV evidence**.
- For optimal muscle activation and effective use of gravity the correct position to sit on the toilet is to lean forward with feet supported so that the hips are flexed > 90 degrees; forearms resting on abducted thighs; back straight (maintaining a normal lumbar curve) – **Level IV evidence**.

Recommendations for laxative prescription
- A stepped approach should be used in which bulking agents are introduced first, followed by either softening or stimulant laxatives with osmotic laxatives used if other laxatives fail or if side effects (such as flatulence) reduce adherence – **Level I evidence**.
- There is no compelling evidence that one laxative is better than another so the cheapest alternative should be tried first.

Recommendations for the use of biofeedback
- Biofeedback can be effective in the treatment of anismus – **Level I evidence**.
- Further studies need to be completed before recommendations can be made about the best type of biofeedback that can be prescribed for individual patients.

Recommendations for surgical treatment of constipation
- Surgical treatment of constipation should only be considered when a prolonged trial of diet modification, increased exercise, laxatives and biofeedback have been unsuccessful. If surgical treatment is pursued the following should be noted:
  - Careful diagnosis of the underlying cause of the chronic constipation is imperative and selection of patients for surgical treatments is one of the most important factors in the success of the procedure.
  - Paradoxical puborectalis contraction and descending perineum syndrome should probably not be treated with current surgical techniques.
  - Total colectomy with ileorectal anastomosis may be useful for slow transit constipation and a reversible stoma formation may have merit for some patients.
  - The continent colonic conduit is a procedure that may be of use in helping patients with severe chronic constipation manage their condition more successfully – **Level I evidence for the above recommendations**.
SECTION THREE

Health Professional Survey

3.1 Background

This study aimed to explore health professionals’ knowledge and practices related to prevention and management of constipation in order to assess the currency and alignment of professional practices with the available best practice evidence-base. The full report of the study can be found in Appendix 3.

3.2 Methods

A cross-sectional survey method using a mix of mail-delivered and personally delivered questionnaires was used to collect information from a sample of four different health professional groups including general practitioners, nurses, physiotherapists and dietitians. The Griffith University Ethics Committee gave ethical clearance.

The 19-item questionnaire was purposively constructed using established contact networks and snowball sampling. The questionnaire was designed to determine health professional’s knowledge and reported practices regarding the prevalence of constipation in patient groups, diagnostic criteria used and self reports of treatment and management practices.

A total of 775 Health professionals received an information letter detailing the projects aims and received a copy of the questionnaire and a replied paid envelope. A single mail out was conducted with a two-week period given to complete the questionnaire. No follow up was carried out. This resulted in a sample of 189 health professionals including general practitioners, nurses, physiotherapists and dietitians. The health professionals came from primary and acute care settings.

All completed surveys were entered into SPSS and cleaned prior to analysis. Analysis included descriptive statistics, ANOVA and Chi-Square tests to investigate variations in health professional’s responses to questions relating to their management and prevention of constipation.

3.3 Results

A response rate of 24% from a total sample frame of 775 was achieved.

Primary descriptors used to define normal bowel function were consistent across professional groups including pain free, strain free defecation motivated by the urge to go. Diagnostic criteria use did not reflect knowledge of existing consensus criteria and straining on defecation was rated the most common diagnostic sign. Respondents tended to rate the prevalence of constipation as increasing with age. Assessment of bowel function was routinely performed by a majority of dietitians and nurses but less frequently by general practitioners and physiotherapists.

Significant differences in exposure to constipated patients in the 45-60 year age range was reported between professional groups, with nurses and dietitians more involved in bowel function assessment, dietitians most involved in counseling about prevention and general practitioners most involved in counseling about constipation management. Adequate fluid intake, a diet high in fibre and regular physical activity were consistently reported as the most
important factors for constipation prevention and management. Differences between professional groups tended to be related to their specialization.

Overall the health professionals expressed a preference for print based materials and indicated that their use of web-based or CD-ROM based materials was low. Clinical guidelines were regarded as useful but only if the evidence base for recommendations was provided.

### 3.4 Conclusion

The results from this study indicate that there is a fair to good general knowledge of the fundamentals of the prevention and management of constipation but that the delineation between prevention and treatment approaches is unclear.

If clinical guidelines and client educational materials are to be produced they should be in print form.
SECTION FOUR

Development of Practice Guidelines and Client Educational Materials

4.1 Development

Following analysis of both the results of the health professional survey and the recommendations from the systematic review the project team consulted with the panel of clinical experts and it was decided that there would be three print based materials developed. These would be:

- A poster designed to raise the consciousness of healthcare clients to the problem of constipation and to encourage them to seek professional assistance to prevent or manage constipation. This poster would be in A2 size (see Appendix 4).
- A three-fold six-page client brochure in A4 size (see Appendix 5).
- An A5 sized booklet of ‘Best Practice Guidelines’ (see Appendix 6)
- Later as part of the first review and revision of the Best Practice Guidelines it was decided to incorporate a clinical decision making algorithm in the booklet. Subsequently this was produced as an A3 sized poster, in addition to being incorporated in the booklet (see Appendix 7).

There were a number of circumstances that caused delays in this development process. The team of clinical experts found it difficult to organise meetings as some team members relocated to other areas of Queensland during the life of the project. Members of the academic team had changes in circumstance for example one team member had leave for 12 months and one team member went overseas for a period of months in 2003. All team members continued to contribute to the project but the review processes involved in the production of the printed materials were slowed down by communication difficulties. In addition, there was difficulty in gaining access to the Commonwealth Department of Health and Ageing logo for inclusion on the printed materials. These problems resulted in the final report and all the printed materials not being available until January 2004.

4.2 Client Poster

The team felt that a client poster, which raised the issue of constipation and encouraged the clients of healthcare professionals to seek professional assistance to prevent or manage constipation, would be of benefit. The advertising and graphic design agency Redsuit was recruited to participate in the project. They developed a numbers of proformas for the poster and following a three-stage consultation process the team selected the version found in Appendix 4.

4.3 Client Brochure

One of the main objectives of the project was to develop educational materials for adults either at risk of or suffering from chronic constipation. Once the systematic review was concluded the panel of clinical experts met to determine the format and content of a client education brochure. An initial draft of the content of the brochure was sent to the academic team for comment and revisions were made following this feedback. Redsuit were asked to design the brochure and to incorporate appropriate graphics.
One of the important graphics that underwent a time consuming review process by both clinicians and academics was that of the Perfect Position. Appendix 5 provides a copy of the brochure.

4.4 Best Practice Guidelines and Algorithm

The development of the ‘Best Practice In The Prevention And Treatment of Constipation In Adults under 65 years’ guidelines was the most time consuming aspect of this project. The project team wanted to ensure that not only were the guidelines evidence-based and of the highest presentation quality but that they were in a form that would be useful to all members of the multidisciplinary healthcare team. This meant that there had to be a four-stage process of review and revision in the development of the text and then a further four-stage process of review and revision of the materials produced by the graphic design team.

Eventually a 35 page A5 size booklet was produced which incorporates all the recommendations of the systematic review and in addition provides an algorithm to assist in clinical decision making and appendices related to client assessment and bowel training exercise regimes (see Appendix 6). It was also decided to provide clinicians with a larger version of the algorithm that could be displayed in a clinical area (Appendix 7).
SECTION FIVE

Evaluation of Best Practice Guidelines and Client Educational Material

5.1 Process

In order to evaluate the acceptability and usefulness of the materials produced in the project and evaluation survey was developed and distributed. The survey was a one-page, easy to complete, anonymous survey designed to be completed by a variety of health professionals.

The questionnaire consisted of 19 questions that included a mix of multiple choice, Likert scales and open-ended questions and was designed to explore health professionals’ overall and specific satisfaction with the materials produced. For each of the four artifacts produced during the project (client poster, client brochure, algorithm and clinical guidelines) the respondents were asked to indicate how useful the material was and whether or not the practitioner would or could use the material in their clinical practice. In addition, for the clinical guidelines the respondents were asked specific questions about the accuracy and appropriateness of the content. The questionnaire was piloted amongst 4 practising health professionals to reduce question ambiguity. See Appendix 8 for a copy of the evaluation questionnaire.

The same mailing list as had been used for the previous health professional survey was used to distribute the clinical guidelines, posters, the client education brochure and a copy of survey to general practitioners, nurses, physiotherapists and dietitians. In total 680 clinicians were sent copies of the materials and the survey. Included in the envelope was a ‘With compliments’ slip identifying the source of the materials and requesting return of the survey in the enclosed stamped and addressed envelope.

5.2 Results of Evaluation

The response rate to the survey was very low with only 11% (n=75) of surveys being returned by the time the data had to be analysed to meet the deadline for the end of the project. Surveys were continuing to return when the data analysis was undertaken. It is the intention of the project team to continue to collect this data and to analyse the final number at a later date and to include these amended figures in any publications regarding the project. Thus this report on the results of the evaluation survey may be considered a preliminary report and further data may provide a clearer indication of the value of the materials produced in the project.

Overall the survey respondents rated the quality of the materials very highly. The detailed responses from the 75 in the preliminary sample are presented in Table 1.
Table 1: Frequencies and percentages of responses to individual survey items

<table>
<thead>
<tr>
<th>Statement</th>
<th>Responses n=75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD n (%)</td>
</tr>
<tr>
<td>Overall the materials are of an excellent standard</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>The patient information poster...</td>
<td></td>
</tr>
<tr>
<td>Is eye catching</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I will display it in my practice setting</td>
<td>4 (5.3)</td>
</tr>
<tr>
<td>The patient information brochure...</td>
<td></td>
</tr>
<tr>
<td>Is well presented</td>
<td>0 (0)</td>
</tr>
<tr>
<td>The content is excellent</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>The brochure is an excellent resource for my clients</td>
<td>2 (2.7)</td>
</tr>
<tr>
<td>The best practice guidelines...</td>
<td></td>
</tr>
<tr>
<td>Are well presented</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>The content is appropriate</td>
<td>2 (2.7)</td>
</tr>
<tr>
<td>The content is accurate</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>The summary boxes enhance ease of use</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>The text is easy to understand</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I will use the guidelines frequently</td>
<td>2 (2.7)</td>
</tr>
<tr>
<td>I will recommend the guidelines to my colleagues</td>
<td>2 (2.7)</td>
</tr>
<tr>
<td>The algorithm poster...</td>
<td></td>
</tr>
<tr>
<td>Is easy to use</td>
<td>3 (4.0)</td>
</tr>
<tr>
<td>I will regularly use the algorithm in my practice</td>
<td>3 (4.0)</td>
</tr>
<tr>
<td>I will recommend the algorithm to my colleagues</td>
<td>3 (4.0)</td>
</tr>
</tbody>
</table>

Key: SD = Strongly disagree; D = Disagree; U = Undecided; A = Agree; SA = Strongly Agree

From Table 1 it can be seen that the patient poster was deemed to be eye catching by 95% (n=71). The patient information booklet was rated as the best resource with all except two of the respondents agreeing with the statement that the booklet content is excellent. The clinical guidelines and algorithm were rated highly by respondents but not as highly as the client focused material. The responses to the open-ended questions provided some insight into why this might be the case. The two main reasons that clinicians gave for not using the materials were (1) clients do not complain of constipation (2) do not see the target age group.

In conclusion, these materials were highly evaluated and clinicians thought that the materials were both well presented and useful.
SECTION SIX

Budget Expenditure
REFERENCES


APPENDICES

List of Appendices

Appendix 1: Consultant’s report incorporating systematic review strategy
Appendix 2: Systematic review
Appendix 3: Report of the survey of health professionals
Appendix 4: Client poster A2 size
Appendix 5: A two-fold six-page client brochure in A4 size
Appendix 6: An A5 sized booklet of ‘Best Practice Guidelines’
Appendix 7: Clinical decision making algorithm as an A3 sized poster.
Appendix 8: Evaluation survey
Initial report on constipation and fecal incontinence
– framework for a systematic review

The subsequent report consists of
1. A set of initial remarks
2. The suggested definitions for use
3. A set of recommendations for how to perform a systematic review of the area, including suggestions for how to
   i. Structure the search for information into different search areas, i.e. aetiology (including risk factors) and clinical guidelines and providing search terms and suitable databases
   ii. Inclusion/exclusion criteria of studies
   iii. Data extraction and synthesis
4. References

Appendix : Data abstraction form – an example from a fruit and vegetable intervention review

1. Initial remarks

- It is of utmost importance to be very clear on the definitions for constipation, and the different assessment methods used in performing the review.
- It is also of importance to be very clear on the assessment of dietary intake, and the problems related especially to assessment of fiber intake and definitions of dietary fiber.
- It is important to realize that the issue of faecal incontinence in the adult, non-elderly population needs to be reviewed as a separate item. It does not seem to be clear that constipation is a contributing factor to faecal incontinence, not even in the elderly, the association that has been found by Romero et al and others could possibly be that those at high risk of faecal incontinence are also at high risk of constipation.
- As follow-up once a draft of clinical guidelines are developed, there should be a pre-testing of the guidelines through focus-group interviews or other methodology in a group of clinicians, and the subsequent pre-testing and development of practical guidelines to patients. This process must be regarded as the second step of the process, including a set of tools for assessing the consumer’s perception of constipation as opposed to the clinicians'.
2. Suggested definitions for use:

I suggest that the Rome II criteria are used, see http://www.romecriteria.org/
These are as follows:

C. Functional Bowel Disorders
The diagnosis of a functional bowel disorder always presumes the absence of a structural or biochemical explanation for the symptoms.

C3. Functional Constipation
At least 12 weeks, which do not need to be consecutive, in the preceding 12 months of two or more of the following symptoms:
1. Straining >1/4 of defecations;
2. Lumpy or hard stools >1/4 of defecations;
3. Sensation of incomplete evacuation >1/4 of defecations;
4. Sensation of anorectal obstruction/blockage >1/4 of defecations;
5. Manual maneuvers to facilitate >1/4 of defecations (e.g. digital evacuation, support of the pelvis floor); and/or
6. <3 defecations per week.

Loose stools are not present and there are insufficient criteria for Irritable Bowel Syndrome. (see below)

C1. Irritable bowel syndrome
At least 12 weeks, which do not need to be consecutive, in the preceding 12 months of abdominal discomfort or pain that has two out of three features:
1. Relieved with defecation; and/or
2. Onset associated with a change in frequency of stool; and/or
3. Onset associated with a change in form (appearance) of stool.

Symptoms that Cumulatively Support the Diagnosis of Irritable Bowel Syndrome

- Abnormal stool frequency (for research purposes « abnormal » may be defined as greater than 3 bowel movements per day and less than 3 bowel movements per week);
- Abnormal stool form (lumpy/hard or loose/watery stool)
- Abnormal stool passage (straining, urgency, or feeling of incomplete evacuation);
- Passage of mucus; Bloating or feeling of abdominal distension.

F. Functional disorders of the Anus and Rectum
The diagnosis of a Functional Disorder of the Anus and Rectum always presumes the absence of a structural or biochemical explanation for the symptoms.

F1. Functional Fecal Incontinence
Recurrent uncontrolled passage of fecal material for at least one month, in an individual with a developmental age of at least 4 years, associated with:
1. Fecal impaction; or
2. Diarrhea; or
3. Nonstructural anal sphincter dysfunction.

Comment: The above definition can not be used blindly, since we also have to consider biochemical effects, such as drug interaction, iron supplementation, excessive tea intake etc. As the group has already observed, the definition for constipation used by the consumers, might also be completely different, which will be taken into account in the second part of the study, where the pre-testing takes place.
3. Systematic review – methodology

Regarding the literature searches that need to be made in the first part of the study, the following causal factors for constipation need to be covered. The list is not necessarily complete, and other factors might turn up underways.

**Lifestyle**

Quick search regarding lifestyle related issues that, in combination especially, might cause the constipation problems:

- **Diet**
  - Low in fiber
  - Energy dense foods eaten by low energy consumers
  - Low intake of plant foods in general
  - Tea from the tea bush
  - Insufficient fluid
- **Lack of physical activity**
- **Stress and/or life changes**
- **Depression**
- **Change in habits**
  - Eating patterns
  - Immobilisation
  - Toilet habits
    - Not responding to impulse to defecate
    - Irregular eating and toilet habits

**Biochemical explanations**

Hormonal changes – i.e. menopause, menstrual cycle effects, thyroid dysfunction, pregnancy

Intoxications – i.e. iron supplementation, hypercalcemia, lead intoxication

Deficiencies – i.e. magnesia or other nutrients

Medication
- sedatives and hypnotics
- longterm abuse of laxatives
- narcotics
- antacids
- muscle relaxants
- calcium antagonists
- diuretics

**Secondary to other diseases**

MS, Parkinson, Autonoumous neuropathies, spinal damage, diabetes mellitus, hypothyreosis

In addition to the above : GI diseases like colon- or rectal cancer, polyps, hemorrhoids, slow transit obstipation, outlet obstruction : rectal prolapse or rectocele. Myoms, cysts, Anismus, Hirschsprung's disease.
i. **Search procedure**
Divide the responsibility for the below suggested search areas between the 3 staff with major involvement in the project; Roger Hughes, Marianne Wallis and Elizabeth Gass, according to areas of interest and ability.

Use the following data bases

Agency for Healthcare Research and Quality (AHRQ) [http://www.ahcpr.gov](http://www.ahcpr.gov)
AMI
Blackwell Journals
Cochrane Library [http://www.cochrane.org](http://www.cochrane.org)
Current Contents
Dissertation Abstracts Database
Drug
Embase
Health Monitor
Health Reference Center
Ingenta Journals
Kinectica
Medtext
Medline
Pharmaceutical News Index
ProQuest
Scientific Technology Network (STN) [http://www.fiz-karlsruhe.de/stn.html](http://www.fiz-karlsruhe.de/stn.html)
« Free » Internet Search [http://www.google.com](http://www.google.com) or any other search engine

Also include:
Abstracts from relevant meetings
Reports from pharmaceutical industries
National library index
National index for theses
Eventual other sources for « grey literature »
  - Contact research groups to find out about unpublished results

| Important task : Develop general instruction for how to deal with unpublished data as well as identify other sources for information, not mentioned above. |

It is important to document the literature evaluation process, including the literature search results. This way, the type of data used can be visualized and the process can be updated at a later stage.
A standard protocol for literature search should be used. An example of such a standard protocol is included as an annex to this report.

The areas that need to be reviewed are listed as follows:

1. Constipation and nutritional links - including
   - Food choice (major food groups)
   - Total intake of fiber
   - Total intake of energy
   - Fluid intake
   - Nutrient deficiencies
   - Nutrient excess
   - Herbal remedies
   Search terms: nutrition, micronutrients, dietary fiber, dehydration, dietary supplement

2. Constipation and physical activity
   Search terms: immobilisation, physical activity, inactivity, massage

3. Constipation and stress/ depression/ transition
   Search terms: stress, psychophysiology, « stress, psychological »

4. Constipation and toilet habits
   Search terms: toilet training, biofeedback

5. Constipation and biochemical reasons including drugs and hormonal changes
   Search terms: Pharmaceutical preparations, hormones

6. Constipation and diabetes mellitus
   Search terms: diabetes mellitus

I suggest that other diseases, like MS, Parkinson, cancers etc., are not a part of this review.
When it comes to treatment/interventions; more search words will be found when performing the 6 causality reviews. A number of different types of guidelines will turn up at the search, make sure that at least the following types are covered:

- Dietary guidelines
- Guidelines regarding toilet habits
- Guidelines for physical activity
- Guidelines for stress management
- Management of drug interactions
- Guidelines for treatment of menopausal symptoms
- Guidelines for treatment of diabetes mellitus
- Guidelines for pregnant women

ii. **Inclusion/exclusion criteria**

Suggested inclusion/exclusion criteria of studies:

- Exclude studies covering situations in elderly, children, palliative care.
- Exclude studies covering neurological disorders such as MS, Parkinson, spinal cord injuries, malignancies and other disease related studies
- Exclude studies where the definitions for constipation and/or fecal incontinence are unclear
- Exclude animal studies
- Include the last 15 years.
- Include causality studies or reviews which have a clear scope, are published in peer-reviewed journals and which describe their epidemiological scope and approach (when using the forms for the review, the different studies can easily be categorized and scrutinized by the group)
- Include official clinical guidelines from professional organizations and scientific assessment Bodies

**General comments**:

- Precision needs to be considered in measurement as well as in effect estimation. Random measurement error in dietary assessment is a problem which tends to attenuate observed effects. This needs to be addressed in the evaluation process.
- Internal validity implies that study results are applicable to the source population since no systematic errors serve as alternative explanations for the study findings. A number of different types of bias need to be ruled out. These are for example:
  - Selection bias such as Self-selection bias, Diagnostic bias, as well as Information bias such as Misclassification of exposure and outcome.
  - Also confounding should be considered.
  - A scoring system should be developed for quality of studies, which can be used for inclusion/exclusion of studies.
iii. Data extraction and synthesis

Decide how to summarise the data, e.g. quantitative or narrative estimates and develop a strategy for how to take heterogeneity of results into account. A summary of each hypothesis is needed. Is there a dose-response relationship for nutrients, foods, dietary fiber, physical activity level? Can qualitative and quantitative data be combined in support of a hypothesis? Can a summary of quantitative results be combined like in a meta-analysis? Look at absolute risk, not only relative risk. Before summarising the reviews, meet and discuss the best approach.

Once the different reviews are completed and a first summary outlined, the results should be peer reviewed before further development. Try to come up with a process for this peer review, which should include a list of possible peer reviewers.

Appendix: An example of data abstraction form, this one from the AHRQ report listed in the reference list. There are some comments in the form, regarding its outline, which were there when I downloaded the zipped file. However, to a great extent, this form can be used by the review team, even though some revisions will be necessary.

Final comment: An interesting by-product of this type of review, is actually the development of a simple check list for how studies relating to the area of constipation and lifestyle/environment should be performed. The team of reviewers will after the complete process have identified a set of characteristics for good quality studies, which should be taken care of.
References:


Appendix 2 – Systematic Review
REPORT OF THE SURVEY OF HEALTH PROFESSIONALS – KNOWLEDGE PRE-TEST AND NEEDS ASSESSMENT

ABSTRACT

Objectives: To explore health professional workforce knowledge and practices related to prevention and management of constipation. To assess the preferences of health professionals for information/education materials.

Design: Cross-sectional survey, using a 19-item questionnaire, distributed to a purposively constructed sample using established contact networks and snowball sampling. The questionnaire was designed to determine health professionals’ knowledge and reported practices regarding the prevalence of constipation in patient groups, diagnostic criteria used and self reports of treatment and management practices.

Subjects: A sample of 189 health professionals including general practitioners, nurses, physiotherapists and dietitians.

Setting: Primary and acute care settings.

Results: A response rate of 24% from a total sample frame of 775 was achieved. Primary descriptors used to define normal bowel function were consistent across professional groups including pain free, strain free defecation motivated by the urge to go. Diagnostic criteria use did not reflect knowledge of existing consensus criteria and straining on defecation was rated the most common diagnostic sign. Respondents tended to rate the prevalence of constipation as increasing with age. Assessment of bowel function was routinely performed by a majority of dietitians and nurses but less frequently by general practitioners and physiotherapists. Significant differences in exposure to constipated patients in the 45-60 year age range was reported between professional groups, with nurses and dietitians more involved in bowel function assessment, dietitians most involved in counseling about prevention and general practitioners most involved in counseling about constipation management. Adequate fluid intake, a diet high in fibre and regular physical activity were consistently reported as the most important factors for constipation prevention and management. Differences between professional groups tended to be related to their specialization.

Conclusions: The results from this study indicate that there is a good general knowledge of the fundamentals of the prevention and management of constipation but that the delineation between prevention and treatment approaches is unclear.
INTRODUCTION

Constipation is reported to be one of the most prevalent gastrointestinal disorders in developed countries [1]. Prevalence measures are difficult to obtain because constipation can be very difficult to define, as one person’s constipation may actually be another’s regularity. Various definitions can be used, for some it is defined as stools that are hard or difficult to evacuate, while for others it may be infrequent defecation, or bulky stools [1-4].

Individual perceptions regarding constipation may depend on expectations of normal bowel function. Definitions of normal bowel function vary, but a frequency of between three times per day to three times per week has been suggested as the normal range [5]. The potential for self-diagnosis based on a perception that a certain frequency is normal may lead to an over reporting of constipation and increase related anxiety amongst individuals. Awareness of normal bowel function therefore is important for individuals and health professionals.

It has been noted that patients’ definitions of constipation emphasise symptoms such as pain and straining rather than frequency [5]. Constipation can also be defined as a chronic (longer than 6 weeks), gastrointestinal disorder consisting of hard stools, fewer than three bowel movements per week [6] or the inability to expel stool, whether hard or soft [1]. A consensus definition of functional constipation (hereafter referred to as the Rome definition) has been developed and includes the following diagnostic criteria:

At least 12 weeks, which need not be consecutive in the preceding 12 months of 2 or more of:
1. Straining > ¼ of defecations
2. Lumpy or hard stools >1/4 defecations
3. Sensation of incomplete evacuation > ¼ defecations
4. Sensation of anorectal obstruction/blockage > ¼ defecations
5. Manual manoeuvres to facilitate > ¼ defecations (e.g. digital evacuation, support of the pelvic floor) and/or
6. < 3 defecations per week [7]

Within Australia there is limited literature reporting the prevalence of constipation in the free-living 45-65 year age group. Available data from US, United Kingdom and Australian studies suggest a prevalence range between 10-27% based on population studies[3, 8]. Constipation is more common in low socio-economic populations[9], women, the elderly, during pregnancy, following surgery, in association with travel or in people who are immobile [10]. Constipation prompts 1.2% of the US population to visit a physician each year[10]. The burden of disease associated with constipation is likely to be high.

The aetiology of constipation is often multi-factorial. The most common causes of constipation are insufficient fibre in the diet, lack of exercise, changes in life or routine such as pregnancy, older age and travel, gastrointestinal and neurological disorders, medication side effects and abuse of laxatives [1]. Fluid intake per se is not necessarily a risk factor although anything reducing the fluid content of the faecal matter will increase the risk of constipation. No compelling evidence shows that inadequate fluid intake results in constipation [3].

The multi-factorial nature of the etiology of constipation means that different health professionals may be involved in patient care. Health professionals such as general practitioners, nurses, dietitians and physiotherapists are regularly involved in the management
of patients for whom constipation is a complaint. The currency and accuracy of their knowledge about the etiology, diagnosis, prevention and management of this disorder underpins quality of care. To our knowledge, there have been few specific population based attempts in Australia to specifically prevent constipation.

This study aimed to explore health professionals’ knowledge and practices related to prevention and management of constipation in order to assess the currency and alignment of professional practices with the available best practice evidence-base.

METHODOLOGY

A cross-sectional survey method using a mix of mail-delivered and personally delivered questionnaires was used to collect information from a sample of four different health professional groups including general practitioners, nurses, physiotherapists and dietitians.

Instrument

A multi-disciplinary team of academic health professionals developed a questionnaire. The questionnaire consisted of 19 questions that included a mix of multiple choice, Likert scales and open-ended questions and was designed to explore health professional’s knowledge of, and use of constipation diagnosis criteria, and practices relating to constipation prevention and management. The questionnaire was piloted amongst 4 practising health professionals to reduce question ambiguity. No further testing was undertaken, as no changes to the questionnaire were required based on this consultation process.

Sampling

A mixed sampling method was applied to reach the four different professional groups. Sampling was purposive in that sample frame construction utilized available professional group contact networks. The questionnaire was then distributed to 426 General practitioners using the Gold Coast division general practitioner mailing list, 120 nurses distributed manually at the district hospital and amongst nurses employed by a district home nursing service, 100 dietitians consisting of 80 Private Practice Dietitians using the Queensland Branch of Accredited Practising Dietitians Register and 20 Clinical Dietitians distributed manually to Prince Alfred Hospital and Royal Brisbane Hospital. The Musculoskeletal Physiotherapists Australian directory of members 2001-2002 was used to sample 113 Physiotherapists.

A total of 775 Health professionals received an information letter detailing the projects aims and received a copy of the questionnaire and a replied paid envelope. A single mail out was conducted with a two-week period given to complete the questionnaire. No follow up was carried out. The Griffith University Ethics Committee gave ethical clearance.

All completed surveys were entered into SPSS and cleaned prior to analysis. Analysis included descriptive statistics, ANOVA and Chi-Square tests to investigate variations in health professional’s responses to questions relating to their management and prevention of constipation.
Results

From the whole sample (775) a total of 189 questionnaires were returned in a usable form, representing a 24% response rate. The different response rates by professional group are detailed in Table 1. The total response sample was over-represented by nurses and general practitioners.

Respondent demographics

The response sample was dominated by female practitioners (bar general practitioners who were male dominant), with an average of 10 or more years experience across professional groups. General practitioners and physiotherapists tended to have more work experience and more likely to have post-entry qualifications than nurses and dietitians.

Table 1. Response rates and respondent demographics

<table>
<thead>
<tr>
<th></th>
<th>General Practitioner</th>
<th>Nurse</th>
<th>Physiotherapist</th>
<th>Dietitian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample (n)</td>
<td>426</td>
<td>120</td>
<td>113</td>
<td>100</td>
<td>775</td>
</tr>
<tr>
<td>Responses (n)</td>
<td>67</td>
<td>60</td>
<td>32</td>
<td>30</td>
<td>189</td>
</tr>
<tr>
<td>Response rate (%)</td>
<td>16</td>
<td>50</td>
<td>28</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Proportion female (%)</td>
<td>36</td>
<td>92</td>
<td>72</td>
<td>97</td>
<td>69</td>
</tr>
<tr>
<td>Mean years experience A</td>
<td>20</td>
<td>15</td>
<td>18</td>
<td>10</td>
<td>16.6</td>
</tr>
<tr>
<td>% with post-entry practice qualifications B</td>
<td>37</td>
<td>17</td>
<td>37</td>
<td>10</td>
<td>32</td>
</tr>
</tbody>
</table>

A Significant difference in mean years experience by professional group (ANOVA, p<0.001)

B Significant difference in proportion of professional group with post-entry level qualifications (chi square, p<0.001)

Normal bowel movement

Pain free defecation, strain free defecation and defecation motivated by urge to go was considered by most respondents to describe normal bowel movements (Table 2).

Table 2. Percent of cases reporting descriptors of normal bowel function by professional group

<table>
<thead>
<tr>
<th></th>
<th>GP</th>
<th>Nurses</th>
<th>Physio</th>
<th>Dietitian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain free defecation</td>
<td>92</td>
<td>80</td>
<td>97</td>
<td>93</td>
<td>89</td>
</tr>
<tr>
<td>Strain free defecation</td>
<td>79</td>
<td>68</td>
<td>81</td>
<td>73</td>
<td>75</td>
</tr>
<tr>
<td>Defecation motivated by urge to go</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stools soft</td>
<td>48</td>
<td>67</td>
<td>69</td>
<td>73</td>
<td>60</td>
</tr>
<tr>
<td>Defecation takes little time each day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At least one bowel motion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stools solid</td>
<td>33</td>
<td>30</td>
<td>25</td>
<td>33</td>
<td>30</td>
</tr>
</tbody>
</table>

n=185
Diagnostic criteria

Only one of the Rome Criteria (strain during defecation in ¼ of defecations) was identified by more than 50% of respondents (Table 3). Less than half of the respondents nominated other diagnostic criteria from the consensus criteria. The most commonly reported diagnostic criteria however tended to conform with the consensus criteria.

Prevalence estimates

Estimates of constipation prevalence in different age groups by this sample indicate that health professionals believed that prevalence amongst the young (less than 30) was generally below 20% but that this increased to as much as 30% with increasing age.

<table>
<thead>
<tr>
<th>Table 3. Percent of cases reporting diagnostic criteria by professional group</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>Straining during defecation in 1/4 of defecations</td>
</tr>
<tr>
<td>Lumpy or hard stools in &gt;1/4 defecations</td>
</tr>
<tr>
<td>Bloating/Abdominal Pain</td>
</tr>
<tr>
<td>Sensation of incomplete evacuation in &gt;1/4 of defecations</td>
</tr>
<tr>
<td>&lt;3 defecations per week</td>
</tr>
<tr>
<td>Manual manoeuvres to facilitate &gt;1/4 of defecations</td>
</tr>
<tr>
<td>Pain during bowel movements</td>
</tr>
<tr>
<td>Sensation ano-rectal obstruction/blockage in &gt;1/4 of defecations</td>
</tr>
<tr>
<td>Abdominal mass on palpation</td>
</tr>
<tr>
<td>Faecal incontinence</td>
</tr>
<tr>
<td>Reduced bowel sounds</td>
</tr>
<tr>
<td>Decrease weight of tools</td>
</tr>
<tr>
<td>Decrease appetite</td>
</tr>
<tr>
<td>Blood in stools</td>
</tr>
<tr>
<td>Flatulence</td>
</tr>
</tbody>
</table>

Bold italic criteria from Rome II Criteria [7]

Frequency of bowel function assessment

There was a statistically significant difference in the reported frequency of bowel function assessment between professional groups (Table 3). Nurses and dietitians were more routine assessors of bowel function than general practitioners and physiotherapists with a large proportion of the later group reporting never undertaking this task.
Table 3. Frequency of assessment of patient's bowel function, by professional group

<table>
<thead>
<tr>
<th>从来不评估</th>
<th>姑息</th>
<th>物理治疗师</th>
<th>营养师</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>In a risk group</td>
<td>25</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td>When signs of bowel pathology</td>
<td>43</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Routinely in every patient</td>
<td>10</td>
<td>75</td>
<td>19</td>
</tr>
<tr>
<td>When a client self reports symptoms of bowel pathology</td>
<td>6</td>
<td>12</td>
<td>23</td>
</tr>
</tbody>
</table>

Statistically significant response distribution by professional group (chi square, p<0.0001)

Frequency of constipation related practices

When asked to estimate the number of adult patients in the 45-60 year age group that required different types of intervention (assessment of bowel function, prescription for treatment, counselling about constipation prevention and management) there was statistically significant difference in response distributions by professional group (chi square, p<0.0001). Dietitians reported servicing more patients for prevention counselling and both nurses and dietitians reported assessing more patients’ bowel function that the other professional groups. General practitioners tended to be interacting more frequently with patients than other professional groups; counselling about treatment.

Knowledge of constipation prevention and management strategies

All the professional groups considered a diet high in fibre, adequate fluid intake and regular physical activity were very important for constipation prevention (Table 4). Physiotherapists more frequently rated defecation posture and positive toilet habits as very important than other professional groups.

Table 4. Percent of cases reporting the following factors as very important for constipation prevention

<table>
<thead>
<tr>
<th>FOR PREVENTION:</th>
<th>GP</th>
<th>Nurse</th>
<th>Physio</th>
<th>Dietitian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate fluid intake</td>
<td>86</td>
<td>90</td>
<td>88</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>A diet high in fibre</td>
<td>90</td>
<td>72</td>
<td>72</td>
<td>93</td>
<td>82</td>
</tr>
<tr>
<td>Regular physical activity</td>
<td>68</td>
<td>61</td>
<td>50</td>
<td>80</td>
<td>65</td>
</tr>
<tr>
<td>Education and reassurance about bowel habits</td>
<td>32</td>
<td>37</td>
<td>59</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Encouraging positive toilet habits</td>
<td>29</td>
<td>30</td>
<td>56</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Medication management</td>
<td>24</td>
<td>39</td>
<td>22</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Encouraging regular meals</td>
<td>23</td>
<td>29</td>
<td>19</td>
<td>47</td>
<td>27</td>
</tr>
<tr>
<td>Encouraging privacy for defeaction</td>
<td>18</td>
<td>37</td>
<td>31</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Defecation posture</td>
<td>8</td>
<td>27</td>
<td>62</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Encouraging regular time for elimination</td>
<td>20</td>
<td>16</td>
<td>15</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Stress management</td>
<td>14</td>
<td>7</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Alternative medicines</td>
<td>4</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>
Similar importance ratings were assigned to these factors for constipation management (Table 5).

Table 5. Percent of cases reporting the following factors as very important for constipation management.

<table>
<thead>
<tr>
<th>FOR MANAGEMENT:</th>
<th>GP</th>
<th>Nurse</th>
<th>Physio</th>
<th>Dietitian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate fluid intake</td>
<td>89</td>
<td>91</td>
<td>94</td>
<td>100</td>
<td>92</td>
</tr>
<tr>
<td>A diet high in fibre</td>
<td>85</td>
<td>83</td>
<td>63</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>Regular physical activity</td>
<td>69</td>
<td>60</td>
<td>56</td>
<td>77</td>
<td>66</td>
</tr>
<tr>
<td>Education and reassurance about bowel</td>
<td>41</td>
<td>57</td>
<td>56</td>
<td>36</td>
<td>48</td>
</tr>
<tr>
<td>Medication management</td>
<td>40</td>
<td>44</td>
<td>47</td>
<td>37</td>
<td>42</td>
</tr>
<tr>
<td>Encouraging privacy for defecation</td>
<td>23</td>
<td>37</td>
<td>34</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Encouraging regular meals</td>
<td>25</td>
<td>33</td>
<td>16</td>
<td>40</td>
<td>28</td>
</tr>
<tr>
<td>Bulking agents (eg. Metamucil)</td>
<td>37</td>
<td>35</td>
<td>9</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Encouraging regular time for elimination</td>
<td>28</td>
<td>21</td>
<td>22</td>
<td>43</td>
<td>27</td>
</tr>
<tr>
<td>Defecation posture</td>
<td>15</td>
<td>21</td>
<td>60</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Stress management</td>
<td>17</td>
<td>13</td>
<td>28</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Stool softeners</td>
<td>14</td>
<td>23</td>
<td>6</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Laxatives</td>
<td>9</td>
<td>16</td>
<td>6</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Alternative medicine</td>
<td>5</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Suppositories</td>
<td>6</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Enemas</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Colonic irrigation</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

When asked to rank the order of usual course of action when dealing with constipation prevention, dietary modification, fluid intake, medication review, physical activity and bulking agents were the most common actions taken in that order. A similar course of action was noted for constipation management.

Discussion

The response rate obtained in this study, limits generalisability to the broader health professional workforce. Respondent bias could also a limiting factor if only health professionals who have professional interest in constipation returned the questionnaire. There was significant difference between representations of health professionals in relation to response rates. Despite these limitations the findings obtained from this study can be used as preliminary data for future research.

The results suggest that most health professionals have knowledge regarding descriptors of normal bowel movement consistent with the literature [5, 11] and health professional’s constipation prevalence estimates were consistent with the available estimate data of approximately 20% increasing with age [12]. Specific knowledge of all the Rome Criteria [7] diagnostic signs and symptoms was low suggesting a need for dissemination of such diagnostic criteria amongst these workforce groups.
Our results indicate that not all health professionals within the study routinely assess bowel function, which may limit opportunities to identify abnormal bowel function and address associated patient concerns. Given the prevalence of this disorder it appears warranted to include regular assessment of bowel function by health professionals, particularly those groups such as general practitioners who are in the forefront of primary care. General Practitioners and Physiotherapists generally only assess a patient’s bowel function if that patient specifically presents with gastrointestinal signs and symptoms related to constipation, which limits the capacity for prevention.

Findings show that unlike the other three health professions within the study, physiotherapists do not routinely see patients aged 45-60 years where the consultation includes assessment, prevention and/or treatment of constipation. This may indicate that the general public does not routinely consult physiotherapists as regularly as other health professions regarding constipation management.

Despite the lack of specific best practice guidelines regarding the prevention and management of constipation, a high percentage of health professionals within the study rated a diet high in fibre, adequate fluid intake and physical activity as the three most important strategies in the prevention and management of constipation, a finding consistent with the literature [5].

Data from this study suggest that health professionals within our sample utilise the same strategies for both prevention and management of constipation. Although there is an unequal literature relating to specific prevention and management strategies, one review suggests that the initial management of constipation may include suppositories, enemas or osmotic laxatives, followed by implementation of a bowel management program utilising preventative interventions, including diet, fluid intake, patient education and physical activity [5]. Specific constipation prevention guidelines are required that differentiate between treatment strategies.

**Conclusion**

The results from this study indicate that there is a good general knowledge of the fundamentals of the prevention and management of constipation but that the delineation between prevention and treatment approaches is unclear.
References

Enclosed are copies of clinical guidelines, a prevention and treatment algorithm poster, a client information poster and a client information brochure related to the prevention and management of constipation in middle aged adults. We would like to ask you to help evaluate the accessibility and usefulness of these materials.

Please read the materials enclosed and answer this brief survey within one week of receiving it. Please return the survey in the enclosed SAE or by faxing it to 07 5571 8310. Thank you.

1. To which professional group do you belong?

Medical practitioner  Nurse  Physiotherapist  Dietitian  Other  Please specify ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … ………… … …/10.\n
Please consider the following statements carefully, rate each one according to the following scale and circle the appropriate number:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Overall the materials are of an excellent standard

3. The patient information poster… Is eye catching

4. I will display it in my practice setting

5. The patient information brochure… Is well presented

6. The content is excellent

7. The brochure is an excellent resource for my clients

8. The best practice guidelines… Are well presented

9. The content is appropriate

10. The content is accurate

11. The summary boxes enhance ease of use

12. The text is easy to understand

13. I will use the guidelines frequently

14. I will recommend the guidelines to my colleagues

15. The algorithm poster… Is easy to use

16. I will regularly use the algorithm in my practice

17. I will recommend the algorithm to my colleagues

18. If you will not use these materials in your practice please tell us why not

19. In what ways can the materials be improved?

This project evaluation is being undertaken by A/Prof. Marianne Wallis and team from Griffith University and Gold Coast Health Service District. This project is supported by funding from the National Continence Management Strategy – FIG Program.